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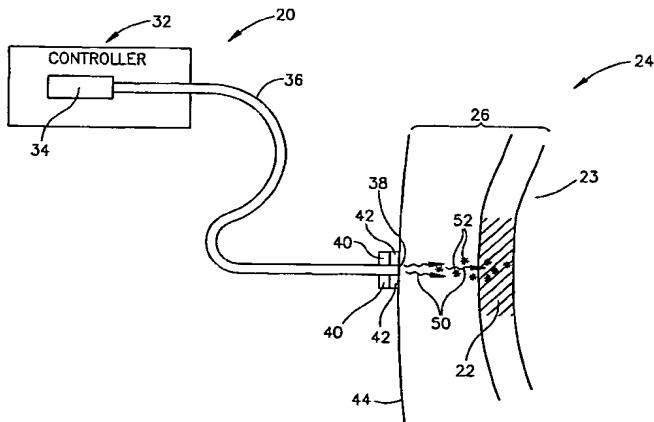
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[Continued on next page]

(54) Title: PHOTOACOUSTIC ASSAY METHOD AND APPARATUS



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(57) Abstract: Apparatus(20, 100) for assaying a target analyte in a localized tissue region (22) that may include the target and other analytes comprising: a light source (34, 104) that illuminates the region with light at each of a plurality of wavelengths at which light is absorbed and/or scattered by tissue in the region wherein light at a least one of the wavelengths is absorbed or scattered by the target analyte; a signal generator (40) that generates signals responsive to intensity of the light from the light source (34, 104) at different locations in the localized region (22); and a controller (32, 102) that: receives the generated signals; processes the signals to determine an extinction coefficient for light in the localized region at each wavelength; and determines the concentration of the target analyte responsive to a solution of a set of simultaneous equations having as unknown variables concentrations of a plurality of analytes in the region (22), one of which is the target analyte, wherein each equation in the set expresses a relationship between the extinction coefficient, the absorption coefficient and/or the reduced scattering coefficient for light at a different one of the plurality of wavelengths and at least one of the equations expresses a relationship between the extinction coefficient and the reduced scattering coefficient.



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